TODAY'S PROBLEMS WITH TOMORROW'S ORGANIZATIONS

BY

CHRIS ARGYRIS

THERE is a revolution brewing in the introduction of new organizational forms to complement or to replace the more traditional pyramidal form. I believe, on the basis of some recent research, that the new forms are basically sound. However, because of the methods used to introduce them and because of those used to maintain them, many of the unintended self-defeating consequences of the older structures are re-appearing.

Two major causes for this revolution are the new requirements for organizational survival in an increasingly competitive environment and the new administrative and information technology available to deal with complexity. W. L. Wallace summarizes these requirements as (1) the technological revolution (complexity and variety of products, new materials and processes, and the effects of massive research), (2) competition and the profit squeeze (saturated markets, inflation of wage and material costs, production efficiency), (3) the high cost of marketing, and (4) the unpredictability of consumer demands (due to high discretionary income, wide range of choices available, and shifting tastes).[1] To make matters more difficult, the costs of new products are increasing while their life expectancy is decreasing.

REQUIREMENTS OF TOMORROW'S ORGANIZATIONS

In order to meet these challenges, modern organizations need (1) much more creative planning, (2) the development of valid and useful knowledge about new products and new processes, (3) increased concerted and co-operative action with internalized long-range commitment by all involved, and (4) increased understanding of criteria for effectiveness that meet the challenges of complexity.

These requirements, in turn, depend upon (1) continuous and open access between individuals and groups, (2) free, reliable communication, where (3) interdependence is the foundation for individual and departmental cohesiveness and (4) trust, risk-taking, and helping each other is prevalent, so that (5) conflict is identified and managed in such a way that the destructive win-lose stances with their accompanying polarization of views are minimized and effective problem-solving is maximized. These conditions,

[1] Wallace, W. L., 'The Winchester-Western Division Concept of Product Planning', Olin Mathieson Chemical Corporation, January 1963, New Haven, pp. 2-3.

in turn, require individuals who (1) do not fear stating their complete views, (2) are capable of creating groups that maximize the unique contributions of each individual, (3) value and seek to integrate their contributions into a creative total, final contribution, (4) rather than needing to be individually rewarded for their contributions, thus (5) finding the search for valid knowledge and the development of the best possible solution intrinsically satisfying.

Unfortunately these conditions are difficult to create. Elsewhere[2] I have tried to show that the traditional pyramidal structure and managerial controls tend to place individuals and departments in constant interdepartmental warfare, where win-lose competition creates polarized stances, that tend to get resolved by the superior making the decisions, thereby creating a dependence upon him. Also, there is a tendency toward conformity, mistrust, and lack of risk-taking among the peers that results in focusing upon individual survival, requiring the seeking out of the scarce rewards, identifying one's self with successful venture (be a hero), and being careful to avoid being blamed for or identified with a failure, thereby becoming a 'bum'. All these adaptive behaviors tend to induce low interpersonal competence and can lead the organization, over the long run, to become rigid, sticky, less innovative, resulting in less than effective decisions with even less internal commitment to the decisions on the part of those involved.

Some people have experimented by structuring the organization in such a way that people representing the major functions (marketing, engineering, manufacturing, and finance) are coerced to work together. Unfortunately, the pyramidal structure does not lend itself to such a strategy. As Wallace points out, the difficulty is that typically each function approaches the business problems inherent in the product from a somewhat different point of view: marketing wants a good product at a low price; production, a product that is easily produced; engineering, a product that outclasses — engineering wise — all other products, etc.[3] None of these stances tends to lead to the resolution of conflicting ideas into a decision that tends to integrate the best of each view.

THE MATRIX ORGANIZATION

One of the most promising strategies to induce co-operation and integration of effort on crucial business problems is the development of project teams and the matrix organization. These administrative innovations were created initially to solve the complex problems of co-ordination and scheduling of large defense projects. They have been adapted and used by many

---

[2] Argyris, Chris, *Interpersonal Competence and Organizational Effectiveness*, 1962, Irwin & Co., and 'Interpersonal Barriers to Decision Making', *Harvard Business Review*, April 1966.
[3] Wallace, W. L., op. cit.

other organizations because of their potential promise. The future role of the team approach and matrix organization is, in my opinion, an important one for administration.

A project team is created to solve a particular problem. It is composed of people representing all the relevant managerial functions (e.g., marketing, manufacturing, engineering, and finance). Each member is given equal responsibility and power to solve the problem. The members are expected to work as a cohesive unit. Once the problem is solved, the team is given a new assignment or disbanded. If the problem is a recurring one, the team remains active. In many cases especially in the defense programs, the project manager is given full authority and responsibility for the completion of the project including rewarding and penalizing the members of the team. An organization may have many teams. This results in an organization that looks like a matrix; hence the title of matrix organization.

Representatives of	Project 1	Project 2	Project 3
Manufacturing			
Engineering			
Marketing			
Finance			
	Team 1	Team 2	Team 3

PROBLEMS WITH THE MATRIX ORGANIZATION

How effective are the project teams and the matrix organizations? In order to begin to answer that question, I have been conducting some research in nine large organizations utilizing a matrix organization structure. In preliminary interviews the executives reported that the matrix organization and team approach made sense, but that they found them very difficult to put into actual practice. People still seemed to polarize issues, resisted exploring ideas thoroughly, mistrusted each other's behavior, focused on trying to protect one's own function, overemphasized simplified criteria of success (e.g., figures on sales), worked too much on day-to-day operations and short-term planning, engaged in the routine decisions rather than focus more on the long-range risky decisions, and emphasized survival more than the integration of effort into a truly accepted decision.

Others found fault with the team approach for not providing individuals enough opportunity to get recognition in their own functional departments for their performance on the team. Still others insisted that individuals

sought to be personally identified with a particular accomplishment; that it wasn't satisfying for them to know that their group (and not they) obtained the reward. Finally, some said that during their meetings the teams got bogged down in focusing on the negative; i.e., what had not been accomplished.

Why are these new administrative structures and strategies having this trouble? I do *not* believe the concept of the matrix organization is inherently invalid. I believe the answer lies in the everyday *behavior styles that the managers have developed, in the past, to survive and to succeed within the traditional pyramidal organization.* The behavior styles needed for the effective use of the matrix organization are, I believe, very different. Also, the group dynamics that are effective in the pyramidal structure are different from those that will be effective in the matrix organization. Thus I do not agree that the comments above are 'natural' for all people. They are 'natural' for people living under the pyramidal concept. For example, groups *can* be created where individuals gain success from seeing integrated decisions; where recognition *does* come more from success and less from compliments from others, where overcoming barriers and correcting faults and failures are not perceived as negative.[4]

A second important cause for the ineffectiveness of the matrix type organization lies in the very processes that have given it birth. Again, the difficulty has been that the birth processes used were more applicable to the pyramidal than to the matrix organization. In short, I am suggesting that a basic problem has been that a new form of organization has been introduced in such a way as to make difficulties inevitable and that the leadership styles that the executives use to administer the matrix organization, on the whole, compound the felony. In order to illustrate my point I should like to take one of these nine studies and discuss it in some detail. The case that I have selected to discuss approximates the other eight. The variance among the cases was not high. More importantly, the establishment of a project and program approach had the most careful thought and analytical competence brought to bear on it by the top management. It is a study of a multi-million-dollar organization that decided to reorganize its *product planning* and *program review* activities into a team approach which resulted in a matrix organization. These two activities have been the ones most frequently organized into a matrix organization. The study lasted about one year. I interviewed all the top executives involved (25), asked them to complete questionnaires, and observed, taped, and analyzed nearly 35 meetings of the teams, ranging from 45 minutes to 2½ hours in length.

---

[4] Argyris, Chris, *Organization and Innovation*, 1965, Irwin & Co.: and Schein, Edgar, and Bennis, Warren, *Personal Growth and Organizational Change Through Group Methods*, 1965, John Wiley & Sons.

THE NATURE OF PRODUCT PLANNING AND PROGRAM REVIEWS

The responsibility of product planning program reviews was to collect and integrate, and maintain up to date information of the progress of any given activity in the organization. Under this concept, the top men could go to one source to get complete information on the organization's present plans, progress against plans, etc. The staff group had no authority to order any of the line executives. It was their task to analyze what the problems were and to get from the line executives their plans as to how they were to be solved. If the line executives were unable to agree then the problem was taken to the chief executive for his decision. In the manual of this company there existed a sentence which stated, '. . . the president retains the authority for final decision and can ordinarily expect that his product planning staff will achieve the agreement of all other departments before plans are presented'. Still later, 'product planning provides team leadership to a team made up of appropriate, fully responsibly representatives of the (line) departments. The Product Planner as team leader encourages, challenges, and insists upon mature, complete and competent coverage by these representatives. Encouragement of better communication between departments is necessary and vital'.

The assumption behind this theory was that if objectives and critical paths to these objectives were defined clearly, people would tend to cooperate to achieve these objectives according to the best schedule that they could devise. However, in practice, the theory was difficult to apply. Why? Let us first take a look at the processes by which these new concepts were introduced.

The management strategy for implementing this new program was primarily one of pushing, persuading, and ordering. The objective was to overcome the forces in the organization that were resisting change thereby pushing the level of effectiveness upward. However, the way this was done added, unintentionally, to the resisting forces. For example, 76 per cent of the subordinates interpreted the processes of a small elite group planning the changes and then management unilaterally installing the activities by persuading the people to accept them as implying that they (subordinates) *had not been competent in the past and that they could not be trusted in making changes.* These feelings were strengthened by the fact that the new activities required greater control over subordinates, more detailed planning, and more concrete commitments which could get the subordinate in trouble if they did not fulfill them. These activities of fear and mistrust still exist. For example:

> 'Sometimes I wonder if the real impact of program reviews isn't to teach people that we don't trust them. I think that the top people have got to have faith in the people, and eliminate some of these constant

and repetitive type of meetings, just to check being checked. I think we can get management to get themselves pretty well informed just through a nominal report type of thing, rather than all this paper work that we have'.

The increasing lack of co-operation, hostility, resistance to meeting program plans, were recognized by the people responsible for the activities. They responded by making the controls even tighter. They asked for more detailed reports, for a wider distribution of minutes, and they used the minutes as evidence that agreements were arrived at that were binding. But again the impact was not completely what was expected. For example:

(a) 'Do we need these complete minutes. We still have a number of people in the organization who feel that they have to document everything in terms of a letter or memo. To me this is an indication of fear'.

(b) 'The more trouble the programs got into the more paper work that we had to complete'.

It was not long before the completion of the paper work became an end in itself. Seventy-one per cent of the middle managers reported that the maintenance of the product planning and program review paper flow became as crucial as accomplishing the line responsibility assigned to each group. For example:

(a) 'I'm afraid that we program the most minute things and the more we program, the less work we get done. I have tried to get this across to the president, but have not been very successful'.

(b) 'One problem I find is the amount of paper work that this system generates. I dare say out of the five-day week it would take you three quarters of a day or a day of your week to just keep up with the paper work. All of the paper work you get does not affect you, but you have to go through it to find out what does and what does not'.

(c) 'In all honesty I think we waste too damn much time around here. These program reviews are especially costly in time. Why one of the fellows the other day said that he received and sends out approximately 50 thousand pieces of paper a month'.

The final quotation illustrates the next problem that arose. Since each individual had his regular job to accomplish in addition to his role as product planning and program reviews, the load became very heavy. *The executives increasingly felt overworked and overloaded with activities that were not leading to increased effectiveness* (83 *per cent*). For example:

(a) 'I believe —— held a scheduling type meeting, and they do call

ordinary meetings, and then all the vice presidents call their people together for a meeting, so that one little meeting at the divisional level has a heck of a lot of man hours tied up into it for the background'.

(b) 'The number of jobs to be done. The sheer volume that has to be turned out. Sometimes you feel as though you are on a treadmill and you can't get off it because no matter what jobs you can see getting accomplished, there are so many more ahead of you that you know you are behind schedule, and it seems to drive you crazy at times. Everyone has the same feelings'.

In spite of these difficulties the level of effectiveness eventually stabilized. But now the resisting forces became much stronger. Also the level of organizational pressure rose.

Most of the lower level managers reported that they did *not* tend to like to be associated with the restraining activities, because they saw such alliance as an indication of disloyalty. I believe that one way to resolve these dissonant feelings about themselves was to strengthen their personal opinions about the negativeness of the program by finding faults with it and by knowingly (and unknowingly) acting so as to make it less effective.

Another mode of adaptation was to withdraw and let the upper levels become responsible for the successful administration of the program. 'This is their baby — let them make it work'. At the same time much hostility could be released safely by constant joking about 'everything is programmed'. For example, girls were asked had they programmed their sex life; men were asked if they had defined the critical path to the men's toilet; etc.

These attitudes threatened the upper levels. They saw them as suggesting that the managers were not as loyal and committed as they should be. The executives reacted by involving the potential wrath of the president. ('He really means business — let's climb on board'.) Soon the president found himself in the position of being cited as 'the' reason why the programs may not be questioned. Also, his immediate subordinates encouraged him to speak out forcefully on the importance of these functions. The president began to feel that he must defend the programs because if he did not, the restraining forces may begin to overcome the management pressure for change. For example:

(a) 'Make no mistake about it, this is the president's baby. Have you ever tried to talk to him about it? He listens for a few minutes and then soon lets you know that he isn't going to tolerate much question'.

(b) 'No, we have pretty much consoled ourselves to the fact that the president is really behind this, and you might just as well forget it.

You are entitled to a personal opinion, of course, but beyond that, you better not take any action'.

The increasing number of control activities and the increasing feelings of pressure lead the subordinates to feel that product planning and program reviews had become dominant in the organization. They unknowingly or knowingly placed less attention upon their original line function activities. This reaction increased the probability that failures would occur, which increased the pressures from the president and in turn his staff people, which infuriated the line managers, and the loop was closed. The top management forces tended to increase, the middle and lower management resistance also tended to increase (even though such action may have made them feel a sense of disloyalty), the tension and pressures increased, and the effectiveness of the program was at a lower level than was potentially possible.

THE EFFECTIVENESS OF THE PRODUCT PLANNING AND PROGRAM REVIEW MEETINGS

To make the situation more difficult the majority of the participants reported that, in addition to the process of introduction being a dissatisfying one, they also reported overall dissatisfaction with the way the programs were being carried out. For example, the meetings tended (1) to suppress individuality, (2) polarized issues into win-lose stances, (3) censored bad news to the top and (4) immobilized the groups with unimportant issues.

OVERALL DISSATISFACTION WITH SMALL GROUP MEETINGS

Dissatisfaction was found to exist with the product planning and program review meetings. The dissatisfactions increased as one went down the chain of command. Thus 64 per cent of the top executives and 83 per cent of the middle managers expressed dissatisfaction with the group meetings.

(a) 'These committees are not the best way to administer an organization. We tend to make little problems into big ones and ignore the nasty ones. We also eat up a lot of time. People don't come in to really listen; they come in to win and fight not to lose'.

(b) 'I think the simple fact is even now there is probably less true acceptance of the product planning function than there was. And I think in truth there is quite fundamental and sincere nonacceptance of the role of planning in the function, not the general idea of ——, 'I've talked to people about this quite a bit'.

Researcher: Why is that?

'Because the fact remains that we do have a schedule, and someone is after them for their answer at that point. And I guess that's tough for

most of us to accept. Maybe this game of having an objective and planning their work accordingly and say what you are going to do. Management is flexible, you're so right. They know we run a high risk here, and the top management never beat them over the back for this kind of stuff'.

SUPPRESSING INDIVIDUALITY

The members reported that in practice, the groups functioned so that individuality was not optimized; conformity and non risk taking predominated. (71 per cent). 'Playing it relatively safe' seemed to be a common activity. For example:

(a) During a heated session about program reviews A accused B of being a coward for not standing up for his view. A replied 'Listen mister, when you have to live with these people as I do, then you can talk. If I really stuck to my views I'd be hated by everyone — and I'd come to hate myself'.

(b) 'Yes, I think the choice that we have been asked to make between no decision and one not so good is a negative choice. Most of the time it is an 11th-hour thing that they arrive at. You either can take it this way or you won't have it for another 6 months'.

Researcher: What prevents a person from sort of digging in and saying no, I don't want anything else?

'Well, there is a lot of pressure. We've got commitments made to the management that where we charge a certain amount of dollars for the dollars they have allowed us to invest in this business'.

POLARIZING ISSUES

At the lower levels, there was a good deal more heated argument which caused the issues to be polarized and people felt that they were neither being heard no were they communicating. This tended to lead to a decrease in the faith in the group's processes and, at the same time, increased the probability that people would tend to come to the meetings with prepared positions. (83 per cent).

For example:

'We have a great deal of people jockeying for position'.

'There are certain things that people are not willing to stick their necks out about. Particularly when it comes to a new program. When it comes to a new program everyone has preconceived positions, and they adhere to them'.

'I think at times people will take an extreme position one time, and another time be very compromising. To take the —— committee as an example, there are occasions where they do not agree and they say, "Too bad we couldn't agree, we'll set up a meeting at the next level".'

CENSORING BAD NEWS TO THE TOP

Another major problem was that some of the more difficult issues developed at the lower levels were watered down by the time they were transmitted to the top. People had learned not to describe to their superiors the complete differences in views and the difficulties in discussing the issues in as strong terms as they experience them. (71 per cent).

'By the way, there is an awful lot of time spent at the lower level and people getting information ready to beat the people at the upper level. And I would say in all honesty that we don't give all the information to the people on top. If we do present them with all the problems it would probably bring this place to a screeching halt'.
'When you have an overly protected meeting the people upstairs don't really get the facts. For example, you soon learn that in a review you take all the things out that might be arbitrary or that might raise difficulties with somebody else'.

IMMOBILIZING THE GROUP WITH UNIMPORTANT DETAILS

Still another frequently reported problem was the immobilization of the group with countless small decisions. (63 per cent). Some department representatives brought everything to the meetings partially to make certain that the program review group took the responsibility for all activities. Other department representatives raised many issues when they were upset with the direction a particular decision was taking or when they wished to delay the making of a decision until further data could be obtained. For example:

(a) 'Some people also don't mind flooding the committee with agenda items. And once there is an item on the agenda the board is committed to study it, whether it is important or not. I think it can be an awful expense of money and time'.
(b) 'If you looked at these minutes of our meetings, and you haven't attended any yet, of course, the number of topics we take up is fantastic, and to the point where we feel that too many people aren't deciding at lower levels, and bucking it is up to us'.

The members of a review group could postpone action or prevent them-selves (and their department) from being held responsible for a decision by asking the group to make it. This was guaranteed to take time since those in the group who did not specialize in that particular technical area had to be briefed.

To summarize, the product planning and program review committees were viewed as plagued with ineffectiveness and win-lose dynamics. An executive who kept a count of how people described these committees concluded that the two most frequent categorizations were 'Committee management at its worse' and 'Moscow delegates' (i.e. delegates who couldn't make a contribution without checking with their department).

The same managers freely admitted that they could not see any resolution, 'any time you run a company by a committee, you'll always have trouble', or 'it's human nature for people to lie and fight when they believe they are being exposed'. Such pessimistic diagnoses will not lead to action for correcting the situation. On the contrary, such diagnoses probably provide ideal rationalization why 'things cannot be changed' and why they can go on feeling and behaving as they do.

As in the problems presented in the previous section, management's reaction was not to deal with the issues openly. More subtle and covertly controlling actions were typically taken. Meetings were scheduled with greater precision, presentations were made both with viewgraph and written script, and even more detailed minutes were taken. The hope was that with tighter outside controls, the groups would tend to operate more effectively. If we may judge from the comments reported above as well as from the observations, the group dynamics have not been altered — indeed, one could argue with some justification that the group defenses are becoming stronger. Thus we conclude again that although the members are aware that the relative ineffectiveness of the group is a crucial problem, they are not able to solve the problems. Moreover, most of the action taken actually helps to increase the members feeling of being unduly controlled and mis-trusted.

WHY DID THE PROBLEMS ARISE?

The explanations for problems like these are multiple and complicated. One way to begin to organize our thoughts is to view the problems as arising from a long causal chain of actions where one action causes several others, which in turn, breeds further actions, etc. I believe that at the begin-ning of this complicated causal chain lie the basic values or assumptions that executives have learned to hold about how to organize human effort effec-tively. These values once internalized, act as commands to coerce the executives to behave in specific ways when they meet to solve problems.

Elsewhere[5] I have shown that executives tend to hold three basic values about effective human relationships within organizations. They are:

1. Getting the job done. 'We are here to manufacture shoes, that is our business, those are the important human relationships; if you have anything that can influence those human relationships, fine'.

2. Be rational and logical and communicate clearly. Effectiveness *decreases* as behavior becomes more emotional. 'Gentlemen, let's get back to the facts', is the classic conference table phrase, or in other words, if you want to be effective, be rational, be clear. If you want to be ineffective, focus on the emotional and interpersonal.

3. People work best under carefully defined direction, authority and control, governed by appropriate rewards and penalties that emphasize rational behavior and achievement of the objective.

In Fig. 1, I should like to illustrate what I believe may be one underlying causal chain causing the problems described above. Let us assume that an organization, at any given point in time, may be described, as having a particular level of effectiveness; that there are forces pushing upward to increase the effectiveness (e.g. top management); and that, since the level is somewhat stable, there are forces pushing downward resisting or restraining the level from going higher.[6] A balance of forces exists.

Now, let us assume that management wants to increase the level of effectiveness (by developing a new product planning and program review activities as in this case, or by any other change the reader wants to imagine). I am suggesting that the underlying *strategy* for, and the *processes of change* will tend to be greatly influenced by values the executives hold that have been described. For example:

(1) Because of the emphasis on objectives and rationality, the executives will tend to assume that the way to get a new organizational activity accepted by the members of the organization is to show them clearly how it fits with the objectives of the organization and to explain rationally the advantages of the new activity over the old one. For example, 'We need tighter controls', 'effectiveness must be increased', 'I'm sure all of us want to manage in the best way available', 'we must always remain alert for new management innovations'. These comments as seen by the subordinates is that management feels compelled to sell them a bill of goods; an implication that they

[5] Argyris, Chris, *Interpersonal Competence and Organizational Effectiveness*, 1962, Richard Irwin.

[6] The model is taken from Kurt Lewin's concept of quasi-stationary equilibria; 'Frontiers in Group Dynamics', *Human Relations*, Vol. 1, No. 1 and No. 2, 1947, pp. 2–38. For the readers interested in organization theory, I mean to imply that people holding the three values above will always tend to create the problems originally depicted in Lewin's model. I am suggesting an explanation to Lewin's question as to why he found change activities in our society tended to take one form.

Fig. 1
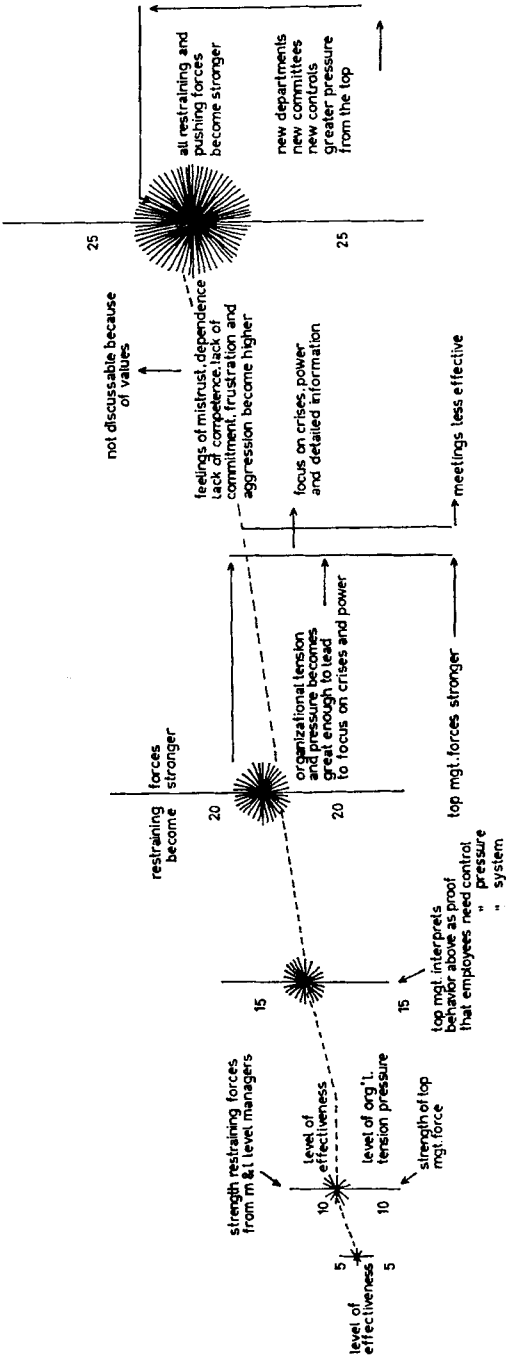
resent. They see little need (if they are effective managers) for someone to tell them effectiveness should be increased, new concepts should be tried, etc. Indeed, many resent the implication that they are not doing this already.

In terms of our diagram, the strategy for change is to overcome the restraining forces by strengthening the pushing forces. This is done by management selling, pushing, and ordering. As we can see, at the second set of forces in our diagram, the level of effectiveness does increase.

(2) But the resisting forces are also increased. The resistance increases because of (a) the negative interpersonal impact the necessity to sell the program had upon the managers, (b) the mistrust and condemnation of the subordinates implied by the new program, (c) the inhibition of the questions and fears the subordinates wished to express *before* they were 'sold', (d) the feeling of being manipulated by the fact that the changes were kept a secret while they were being planned, and (e) the dependence and submissiveness caused by the unilateral management strategy.

(3) As can be predicted from knowing that management is uncomfortable in discussing negative feelings openly, the restraining forces are not dealt with directly. The result so far, is an increase in the level of effectiveness, an increase in resisting forces, and an increase in what we might call the gross organizational tension level (notched marks in Fig. 1).

(4) Remaining true to their values the top executives respond by creating new rational forces (a new sales pitch on the values of the program); bringing to bear new controls, and issuing new orders to overcome the resistance. This tends to coerce the subordinates to suppress their confusion, feelings of distrust, and tension related to the new program, especially when interacting with the superiors. However, these feelings and tensions can not be suppressed forever. They may erupt during the meetings that are part of the new change activities thereby guaranteeing the ineffectiveness of these meetings.

(5) The increased management pressure, the increase in controls through paper work, the overload of work, all act to increase the forces pushing the level of effectiveness upward. The mistrust, tension, ineffective meetings (in our case of product planning and program reviews), the willingness on the part of lower level management to make the top responsible for the change (this is their baby) become examples of how the restraining forces are increased. The organizational tension also increases. This, in turn, stimulates management to develop new controls, check points, new courses to explain the importance of the program, etc. These actions further increase the upward forces, which, in turn, increases the resisting forces, which in turn increases the organizational tension. The loop is now closed.

At some point the difficulties and tensions reach a breaking point among the members. The top executives usually sense this and typically call for a

one or two day meeting away from home base 'to take out the kinks in the program'. In my experience most of these meetings were not very effective because the subordinates feared bringing out their real feelings and the true difficulties. One interesting sign that the true problems did not come out in these meetings was the degree to which the participants assigned the causes of their problems to conditions that were typical under the pyramidal organizational structure. For example, people may spend time trying to find out who was the *one* person responsible for decision making; they craved identification of their individual contribution; they competed in win-lose battles, etc.

The difficulties with these meetings is illustrated in the example below. Three years after the reorganization plan went into effect developing a team approach, marketing and manufacturing were still having difficulties defining their roles and responsibilities. Manufacturing doubted that it needed marketing and *vice versa*. (If I included all the data we would see that engineering also had its doubts). In reading the example, it is useful to note how many of the problems raised and the solutions suggested are typical of the traditional organizational climate and not those endemic of the matrix organization. Each group worried more about trying to show that it was truly 'the' most responsible. There was little attempt by the participants to help each other and to try to build a cohesive team where the whole was more important than any one part. Also when personality issues were ever so gently brought out (toward the end), the leader changed the subject.

A. Just the same way that the R and D department resents it and market-ing man says 'my technology manager' and he says 'my manufacturing team'.

D. You know I don't resent that at all because I talk about my marketing manager.

C. Some of us do. We're all getting over it but at the beginning we all tended to be sensitive.

A. Rather than the marketing managers' decisions, isn't the direction of the company contingent upon the company's decisions for these market opportunities determine the direction in which our future lies?

B. I'd like to reply to that because strategy is knowing the customer. The big deal the whole part of it is knowing what the hell your competition's in. If you don't know your competition, you don't really know what the hell to do and who helps you play the strategy defense. It's got to be manufacturing. They've got to know their competing existing technology. They're the people that tell you what dollars . . . they give you a good share of the judgements that you can apply to strategy.

D. An example to support your point is product X. This is a real good example because this is where the manufacturing team set, looked at all competitive economics, all known producers, all possible methods by which X could be produced, and came up with what we might call an equilibrium sales price. This is a price at which somebody could over the next ten years afford to put in new capacity so this came out as an average sales price. Now that really established the basic strategy level, so we then compare all the methods by which we could apply ourselves to producing our requirements on this product and looked at the comparative economics of these and their performance in the in-use areas for all of the uses of the product. So all the market technology teams contributed to this area. But the prime mover in the whole thing and really the one who was developing the whole base for the decision was a manufacturing team who were drawing together all of these inputs on competitive products and competitive economics, long range planning, but the decision as it was arrived at was a completely composite decision in the different marketing areas where the products were going to be sold.

C. I don't have very much experience the way the other guys do, but I don't see how you can, there is no separation between our groups.

E. You fellows may not like this, but I really think that basically the company still sets the price beyond which profit can be made and it's the agents who are selling the goods from this company who still are responsible to maximize profit.

D. Well, what do you think this is? I can't see where we're in any conflict with manufacturing.

B. Like hell!

A. I think this is probably right and maybe this is because we don't agree with manufacturing's mandate, the whole group down there on the boon docks don't really understand what marketing's function is. That's why we're gathered around this table, to try to understand that. It's obvious that there are a lot of people that don't understand what marketing's function is because that's why we've got it on the agenda.

B. Well, maybe if we understand your point of view, maybe we can help you to understand us.

A. Manufacturing has to understand what every marketing group, how every marketing group understands their own job. If you're not going to be the same, then the manufacturing group has to understand how you understand your job and how everyone understands their job.

C. Let me ask this — maybe you can help clarify it. Suppose marketing

technology's out of this thing and then just have the manufacturing team and the sales department — could you operate on that basis? Do you need this marketing group?

A. It is a good question. The answer is probably no. We were almost doing this once before, before the reorganization and obviously it wasn't working successfully. The thing we've got now is a good bit more successful.

B. This terminology really leaves me cold. What do you mean 'more successful'?

E. It's semantics, that's all.

B. The guys down at the boon docks now think that marketing should look at the sales department as a bunch of peddlers. These are the terms that are being thrown around.

D. I think this all helped. We understand each better, so what's the next topic? This is the thing that I want to avoid, that we bring personalities into this. It was nothing personal. It was simply a statement that you made that I was having trouble understanding.

B. Everybody's getting involved and yet the problem's not being solved. We talked about this last week. The manufacturing managers talked about this. All of us are talking and that's about all.

Some readers may wonder how typical is this situation. In my experience the confusion and conflict is quite typical. The meeting was more open than usual which permitted us to get a rich specimen of the conflict. By the way, I do hope that these observations will help top managements pause and question their belief that the best way to plan a reorganization is to appoint a top committee (with all the appropriate help) to develop a reorganization plan and then 'sell' it to the organization. The lower level managers soon hear about the meetings and see them as the first sign of mistrust. The reasons usually given for this strategy are that to get wider participation may upset people and make it more difficult to sell the new plan. In my experience people become doubly upset with the secrecy and the anxiety built up around the rumors related to the reorganization. The time necessary for getting the program truly accepted is easily doubled. (In some recent research with governmental bureaux the time is extended till the next re-organization).

I also hope that these data will raise question with the advice that some recent theorists suggest that people's behavior can be changed by changing the organizational structure. If the data from these nine examples are valid, then we may conclude that their view is oversimplified. I would agree with them that changes in organizational structure do bring about intended changes in people's behavior. (In our figure the effectiveness level was

increased.) However, they also bring about unintended behavioral changes; the restraining forces are strengthened and the organizational tension level is greatly increased. To my knowledge the proponents of this approach have never shown an example where by changing the organizational structure the restraining forces and tension levels were also not increased.

These results suggest that, in addition to organizational structural changes, one should also focus on altering the basic values of the executives so that they can develop change strategies that may minimize the unintended consequences. (One example will be discussed below.) Our approach is not to be viewed as taking sides in an argument of change in structure vs changes in people: our view is changes in structure *through* changes in people's values. Nor does the approach imply a blanket condemnation of the change strategy illustrated in Fig. 1. Such a strategy may be necessary where (for whatever reason) people refuse to alter their values; to become fully involved in the change; to take on their share of creating the change. If there is a lack of time for the more involving change process then one may use the more unilateral one depicted in Fig. 1 but may consider being quite open about the possible negative consequences and asking the people to help to reduce them.

WHAT TO DO

I should like, at the outset, to repeat my view that project teams and matrix organizations are fundamentally valid. I believe that they are the most effective organizational structures for decisions that are complex and risky, that require the integration of many different inputs, and that depend on the continuing, long-range commitment of everyone involved without the organization's being saddled with excess and unneeded structures. (Once the project is complete, the team can be disbanded or a new project be assigned to it.)[7]

A NEW PHILOSOPHY OF ORGANIZING AND MANAGING PEOPLE

One of the most important first steps is to communicate to the people that the matrix organization is not a simple extension of the traditional pyramidal structure. The pyramidal structure acquires its form from the fact that as one goes up the administrative ladder (1) power and control increase, (2) the availability of information increases, (3) the degree of flexibility to act increases, (4) the scope of the decisions made and the responsibilities involved increase. Implicit in the matrix organization are almost opposite tendencies. For example, power and control are given to

[7] Argyris, Chris, *Integrating the Individual and the Organization*, 1964, John Wiley & Sons. In the same book I try to support the view that the matrix organization more nearly approximates the essential properties of organization than does the pyramidal organization.

the individual and/or to the groups who have the technical skill to accomplish the task, no matter what their organizational level. Thus a team could be composed of five people representing all different levels of authority (on the traditional chart), who are equal. The group could be chaired by the individual with the least organizational authority. The individual or groups are given responsibility and authority to make decisions of the widest necessary scope.

If we may extrapolate to the probable matrix organization of the future Forrester suggests that the organization will eventually eliminate the superior-subordinate relationship and substitute for it the individual self-discipline arising from self-interest created by a competitive market mechanism within the system. The individual would negotiate continuously changing relationships. Each individual would be a profit center whose objective would be to produce the most value for the least activity; who would have the freedom to terminate as well as to create new activity, who would have access to all the necessary information. The organization of the future would be rid of internal monopolies which is the usual status of most traditional departments.[8]

Although I would agree with Forrester, I believe that the organizations of the future will be a combination of the old and the new forms of organization. I believe that the old forms are going to be more effective for the routine, non-innovative activity that requires little, if any, internal commitment by the participants. However, as the decisions become less routine, more innovative and require more commitment, the newer forms such as the matrix organizations will be more effective.

In addition to being able to differentiate clearly between the old and the new forms, the future executive must also be able to know the conditions under which he will use the different organizational forms.[9] Moreover, he will need to become skilful in several different kinds of leadership styles, each of which is consistent with a particular form. For example, an authoritarian leadership style is more consistent with the traditional structure; a participative style with the link pin organization defined by Likert and a style that develops risk-taking and trust for the matrix organization.

LEADERSHIP STYLE AND MATRIX ORGANIZATION

If recent research is valid, then the majority of executive leadership styles conform to the traditional pyramidal style. This is not surprising since leadership styles and organizational design would naturally go together.

[8] Forrester, Jay W., 'A New Corporate Design', *Industrial Management Review*, Vol. 7, No. 1, Fall 1965, pp. 5–18.

[9] Elsewhere I have suggested some examples of the decision rules that could be developed within the organization so that all concerned could be clear when to use the different structures. Argyris, Chris, *Integrating the Individual and the Organization*, op. cit.

The findings that did surprise us were (1) the degree to which the executives believed in leadership styles that were consonant with the matrix organization, and (2) the degree to which they were *unaware* that they were *not* behaving according to their ideals.[10]

Another important first step therefore is to help executives become more aware of their actual leadership style. Unless they develop such awareness, they are not going to be able to unfreeze their old styles, develop new ones, and most importantly, switch from one style to another as the administrative situations and the organization structure used is changed. Unless the switching from one style to another can be clearly identified by the person and the receivers, confusion will result.[11]

Another finding that surprised us about executive decision-making was how many executives focused on keeping people 'happy'. Indeed, the most frequently cited reason for not being open with another was the fear that it might upset the receiver (and thus upset the sender). The most frequently cited reason for not bringing two groups together who are locked in inter-departmental warfare was that it would simply 'involve personalities and nothing but harm could come of it'. Although the executives that we studied were happiness-oriented in their behavior, they were not in their attitudes. They believed in strong leadership that could call a spade a spade and let the chips fall where they may. Again according to the observations, the spades were called spades and the chips placed on the line, but in private settings where few could be witnesses, or by such deft and diplomatic processes that few people, including the targets, were aware of what was happening. I cannot refrain from adding that there seemed to be a strong correlation between those executives who were critical of the field of 'human relations' as one whose objective was to make people happy and the degree of their blindness to the fact that they tended to do the very same thing when they were actually leading.

THE MANAGEMENT OF TENSION

Executives in the matrix organization will also need to learn, if I may be permitted to oversimplify, that there is productive and unproductive or crippling tension. The unproductive or crippling tension is tension that a person experiences but which he cannot control. The reason he cannot control the tension may be external (pressure from his superior) or internal (inability to control his own demands on himself, plus the accompanying feelings of impatience and guilt aimed at himself).

Productive tension is that tension that the individual can control and

[10] Argyris, Chris, 'Interpersonal Barriers to Decision Making', op. cit.
[11] For some concrete examples of how this may be achieved, see my article quoted above in the *Harvard Business Review*, in March 1966.

which comes from accepting new challenges, taking risks, expanding one's competencies, etc. These are the very qualities that are central to the matrix organization. Thus the executive of the future will have to learn how to define internal environments that challenge people, stretch their aspirations realistically, and help them face interpersonal reality. Some examples are financial controls that reward people for risk-taking; organizational situations that are optimally undermanned; incentive systems that reward excellence (not average performance), work that is designed to use people's complex abilities. To put this another way, we need to develop competence in manipulating the environment but not the people. (They should have the freedom and responsibility to choose if they will enter the new environment).

THE MANAGEMENT OF INTERGROUP CONFLICT

The matrix organization is composed of teams which in turn are populated by representatives of the traditional line functions. As we have seen, this leads to much intergroup conflict within the team as well as between teams.

Instead of trying to stamp out intergroup conflict as bad and disloyal, the executives need to learn how to manage it so that the constructive aspects are emphasized and the destructive aspects are de-emphasized. This means that the organization needs to put on the table for diagnosis the interdepartmental fires, the incidents of throwing the dead cat over into the other department's yard, the polarized competitive warfare where success is defined by the participants in terms of which side won rather than the contribution to the whole. The executives will have to learn how (1) to bring the groups together, (2) where each discusses and seeks, in private, to agree on its views and attitudes toward the other and toward self, (3) then the representatives of both groups talk together in the presence of the other group members, followed by (4) private discussion to establish the way they are perceived by others in order (5) to develop (through representatives) an understanding of the discrepancy between their and other's views.[12]

THE EXECUTIVE EDUCATIONAL ACTIVITIES

Most organizations send their executives to university executive programs or to internal executive programs usually designed following the concept of the university. I do not want to get into philosophical discussions about the nature of university education at this point. I would like to point out, however, that *there may be a discrepancy between the characteristics of university education and the needs of the matrix organization.*

The university has typically assumed that learning (1) is for the individual, (2) occurs when it is given, (3) is tested by contrived examinations of the

[12] Blake, Robert R., Shepard, Herbert A. and Mouton, Jane S., *Managing Intergroup Conflict in Industry*, 1965, Houston, Gulf Publishing Co.

knowledge acquired, (4) need not be relevant to any immediate problem, (5) should be designed and controlled by the educator; it is the task of the educator to define the problems, develop ways to solve them and define the criteria for evaluation who passes and who does not. The matrix organizations require education that (1) focuses on individuals in team systems and (2) it occurs where the problem is located, (3) is learned by the use of actual problems, and (4) is tested by the effectiveness of the actual results, and (5) is controlled by those participating in the problem (aided by the educator as a consultant).

Executive education in the matrix organization will focus on system effectiveness. This means that the central educational department will now become an organizational development activity. It will have systems as its clients. A small team of consultants will enter the system and develop a diagnosis of its human and technical effectiveness. These data will then be fed back to representatives at all levels of the system to generate, at the grass-roots level, action recommendations. A steering committee composed of representatives of the client system and the organizational development will then prepare a long-range educational program designed to increase the immediate as well as the long-range effectiveness of the system.

Classes may then be held at the plant location or at a central facility, depending upon the resources needed, the time available, the availability of the 'students', as well as the faculty. Teams and not disconnected individuals will study together for the majority of technical and management subjects. These teams will be actual working teams. This will place pressure on the faculty to develop learning that is valid for the real problems of the team and motivate the students to learn, since it is their problems upon which the education is focusing.

To put this another way, education will be for organizational and system diagnosis, renewal and effectiveness. It will be held with groups, subject material, and faculty that are organic to the organization's problem. One of the dangers of this education is the possibility that it will focus on the trivial, short-range problems. The quality control in this area will depend partially on the diagnostic competence of the faculty. In defining the problem they can help the organization to get to the underlying and basic causes. The students can also help by being alert to the validity of the education that is being offered to them.

Some critics wonder if teams of people working together can be pulled away from work. The answer, in my experience, is affirmative. The fear, for example, that the company will be in trouble if the top team leaves for a week, has been quietly exploded in several cases. The explosions have been quiet lest, as one president put it, 'it was learned how well things ran while the top management was away'.

More importantly, this new type of education is central to the work of the system. Thus, the team is not being pulled away from work. Indeed, in many cases, it is pulled away *in order to work*. Systems, like cars, need to have their organizational hoods opened and the motor checked and tuned. Unless this maintenance work is done, the system will deteriorate as certainly as does an automobile.

Finally, the concern of being away physically from the location should be matched with the concern about the number of hours being consumed needlessly while at work. In the studies listed previously, I have found that as many as half the meetings and as much as three quarters of the time spent at meetings are not productive and worse than unnecessary.

ORGANIZATIONAL CHANGE

Anyone who has planned major organizational change knows (1) how difficult it is to foresee accurately all the major problems involved, (2) the enormous amount of time needed to iron out the kinks and get people to accept the change, (3) the apparent lack of internal commitment on the part of many to help make the plan work, manifested partly (5) by people at all levels resisting taking the initiative to make modifications that they see are necessary so that the new plan can work. In preparing this article, I reviewed my notes from thirty two major re-organizations in large organizations in which I played some consulting and research role. I did not find one that could be labeled as fully completed and integrated three years after the change had been announced (and in many cases had gone through several revisions). That is, after three years there were still many people fighting, ignoring, questioning, resisting, blaming, the re-organization without feeling a strong obligation personally to correct the situation.

As I mentioned above, I believe the reasons for this long delay are embedded in the change strategy typically used by management. To refer to the diagram, the basic strategy has been for the top management to take the responsibility to overcome and outguess the resistance to change. This strategy does tend to succeed because management works very hard, applies pressure, and if necessary knocks a few heads together (or eliminates some). However, as we have seen, the strategy creates resisting forces that are costly to the organization's effectiveness, to its long run viability and flexibility, as well as to the people at all levels.

Reducing the Resisting Forces

What would happen if management experiments with the strategy of reducing the restraining forces by involving, at least, the management employees at all levels in the diagnosis, design, and executive of the change program? For example, in one organization a plan of reorganization was

begun by getting all levels involved in diagnosing the present problems of the organizations. Groups were formed (which met only twice for several hours each time) to diagnose the effectiveness of the present organization. These groups were initially composed of people from various functions but holding positions of about equal level. Each group brain stormed as much as it desired to get out of the problems. They were not asked to suggest solutions at this time because (1) no one group would have a total picture of the organization, and therefore (2) its recommendations could be incomplete and misleading, with the added danger of (3) each group becoming attached to their suggestions, and finally (4) people tend to be hesitant about enumerating a problem if they are asked for solutions and do not have any.

The results of these diagnostic sessions were fed to a top level steering committee which contained representatives of all the major managerial levels. This committee had the diagnoses collated, analyzed, and developed into an integrated picture. Wherever they found holes and inconsistencies, in the diagnoses they made a note of them. Eventually they had compiled a lengthy list of major questions to be answered before the overall diagnosis could be accepted as valid. These questions were fed to small task forces whose composition was specifically designed to be able to answer the questions. Thus, in this phase, the groups were composed of managerial personnel from many functions and levels who were relevant to the question being asked. These task forces were disbanded as soon as they provided the answers to the questions.

The third phase was one where the steering committee tried to develop a new organizational structure. In achieving this objective the steering committee began, for the first time, to suggest arrangements of individuals and groups tasks that could be threatening to various interests. This led to the members becoming more involved, cautious, and at times, defensive. Members who, up to this point, had felt free to be objective were beginning to feel themselves slipping into the role of protecting the groups toward which they had the closest attachment.

At this point, the task force went to the education group and asked for a course in such subjects as how to deal with intergroup rivalries and issues; with emotionality in groups, and with hidden agendas. This course was quickly but carefully planned. The steering committee members reported that it was a great help to them. It was especially helpful in welding them into a more fully functioning open, confronting of issues and risk taking, group. They also reported that as the members' confidence and trust in their group increased, the more willing they were to invite, at the appropriate time, members of departments whose future roles were being discussed so that the problems could be discussed and solved jointly.

The fourth phase was the preparation of a final but still tentative plan. It was fully discussed with the top executives until it represented a plan that they liked. This plan was then discussed systematically with key representatives of all the departments. Alterations were invited and carefully considered. Two members of the steering committee were members of top management who had authority to represent the top in approving most changes.

During the fifth phase two kinds of data were collected. First a questionnaire was sent to all who had participated asking them for any individual comments about the plan as well as any comments about the effectiveness of the process of change to date. This diagnosis uncovered, in several cases new ideas to be considered as well as several suggestions to be re-examined because they were developed in groups where individuals felt that they had been pushed through by a small but powerful clique.

The final plan was then drawn up with a specific time table (which had been discussed and accepted by the people below.) The top management, with the help of the steering committee, then put the new organizational plan into action. These phases took nearly seventeen months. However, once the plan became policy (1) the resisting forces and the tensions were much lower than expected on the basis of previous experience, (2) wherever they existed there were organizational mechanisms already established and working to resolve them, (3) the internal commitment to the new policy was high (it is ours not theirs) and thus (4) changes were made as they became necessary without much fanfare or difficulty.

One of the most important outcomes of this type of change strategy was that it provided a living educational experience for individuals and groups on how to work together; on how to develop internal commitment among the members of the organization, and how to reduce the unnecessary and destructive win-lose rivalries. Thus the change program became an opportunity for education at all levels. The result was that a new system had been created which could be used for future changes and to increase the capacity of the organization to learn.

Even with these results, I have encountered some managers who wonder if an organization can take this much time for changing organizational structure. In my experience, although time is a critical factor, it is a false issue. Time will be taken, whether management is aware of it or not, by people to ask all the questions, make all the politically necessary moves, develop all the protective devices, and create all the organizational escape hatches that they feel are necessary. The real issue is whether the time will be used constructively and effectively so that the organization can learn from its experiences thereby increasing its competence in becoming a problem solving system.